

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Robert Mueller on July 06, 2011.

The application has been amended as follows:

IN THE CLAIMS

Please cancel claims 277 and 286; and

Please amend claims 224, 226, 274, 275, 280, 283, 287 and 288 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-223 (Canceled).

224. (Currently Amended) A device for producing a tissue web comprising:
at least one drying cylinder;
a creping doctor arranged on the at least one drying cylinder;
a winding device for winding up the tissue web;
the winding device comprising a winding nip formed between a winding drum and a spool;
a transfer device at least largely bridging an entire distance between the creping doctor and the winding device and moves around the winding drum of the winding device;

a free web draw arranged between the creping doctor and the winding device; and
a mechanism for at least one of controlling and measuring a line force in the winding nip,
wherein the tissue web is supported ~~on only one side~~ on its underside by the transfer
device over an entire distance from where the tissue web first contacts the transfer device to
~~between the free web draw and the winding nip, and~~
wherein the line force is less than or equal to 0.8 kN/m.

225. (Previously Presented) The device of claim 224, wherein the free web draw is one
of:

- < 1 m; and
- < 0.5 m.

226. (Currently Amended) The device of claim 224, wherein the transfer device ~~is at least~~
~~one of:~~
~~arranged on an underside of the tissue web; and~~
begins to support the tissue web underneath the creping doctor.

227. (Previously Presented) The device of claim 224, wherein the transfer device
comprises one of:

- a belt;
- an embossing belt;
- a felt;
- an embossing felt;
- a membrane;
- a Spectra membrane;
- a structured material; and
- a TAD belt.

228. (Previously Presented) The device of claim 224, wherein the spool is one of a driven spool and a spool having displacement control and wherein the transfer device is led through the winding nip of the winding device with the tissue web.

229. (Previously Presented) The device of claim 224, further comprising a device which subjects the tissue web to a patterning in the winding nip of the winding device.

230. (Previously Presented) The device of claim 224, wherein the line force is about 0.2 kN/m.

231. (Previously Presented) The device of claim 224, further comprising one of:
a device for subjecting the tissue web to wet formation arranged between the at least one drying cylinder and the winding device;

a device for rewetting and applying a vacuum to the tissue web arranged between the at least one drying cylinder and the winding device;

a device for rewetting and a device for applying a vacuum to the tissue web arranged between the at least one drying cylinder and the winding device;

a device for rewetting and a device for applying a vacuum to the tissue web arranged between the at least one drying cylinder and the winding device, the rewetting device being arranged on an upper side of the tissue web and the device for applying vacuum being arranged on an underside of the tissue web; and

a device for rewetting, a device for applying a vacuum, and a device for drying the tissue web arranged between the at least one drying cylinder and the winding device, the drying device is arranged after the rewetting device and the device for applying a vacuum.

232. (Previously Presented) The device of claim 224, further comprising at least one of:
at least one infrared drying device; and
a drying hood.

233. (Previously Presented) The device of claim 224, wherein the tissue web has, at the creping doctor, one of:

- a dryness of between about 70% and about 100%; and
- a dryness of between about 93% and about 98%.

234. (Previously Presented) The device of claim 224, wherein a creping rate is one of:
between about 0% and about 50%; and
between about 10% and about 25%.

235. (Previously Presented) The device of claim 224, wherein the device does not utilizes a threading system.

236. (Previously Presented) The device of claim 224, further comprising one of:
a device for applying vacuum to the tissue web positioned after the creping doctor; and
a device for blowing on the tissue web positioned after the creping doctor.

237. (Previously Presented) The device of claim 224, wherein the winding drum comprises one of:

- an uncovered winding drum;
- a covered winding drum;
- a winding drum having a smooth shell;
- a winding drum having a blind-drilled shell;
- a winding drum having a drilled shell; and
- a winding drum having a shell with grooves.

238. (Previously Presented) The device of claim 224, further comprising one of:
a pulper arranged under the at least one drying cylinder;
a pulper arranged under the winding device; and
a device for blowing off excess paper present on a winding drum of the winding device into a pulper.

239. (Previously Presented) The device of claim 224, further comprising one of:
an air deflector arranged on a winding drum of the winding device; and
a doctor arranged on a winding drum of the winding device.

240. (Previously Presented) The device of claim 224, wherein the tissue web has at least one of:

a low basis weight; and
a low tensile strength.

241. (Previously Presented) The device of claim 224, further comprising:
a headbox;
an endless carrier belt; and
a press nip formed between the at least one drying cylinder and a backing unit.

242. (Previously Presented) The device of claim 241, wherein the headbox comprises a multilayer headbox, to which at least two grades of stock can be supplied, and further comprising one of:

a device for influence a hardness of a roll upon which the tissue web is wound;
a device for controlling a hardness of a roll upon which the tissue web is wound; and
a device for regulating a hardness of a roll upon which the tissue web is wound.

243. (Previously Presented) The device of claim 224, wherein the at least one drying cylinder is a Yankee cylinder.

244. (Previously Canceled).

245. (Previously Presented) The device of claim 224, further comprising:
a former having two circulating endless belts which run together and form a stock inlet gap, the two circulating endless belts being led over a forming element such an inner belt of the two circulating endless belts comes into contact with the forming element.

246. (Previously Presented) The device of claim 224, further comprising a Crescent former and a felt for forming the tissue web.

247. (Previously Presented) The device of claim 224, wherein the tissue web is led through at least one shoe press on a carrier belt.

248. (Previously Presented) The device of claim 224, further comprising one of:
a backing unit assigned to the at least one drying cylinder; and
a shoe press unit arranged at the at least one drying cylinder.

249. (Previously Presented) The device of claim 224, further comprising a drying hood and a press nip arranged at the at least one drying cylinder.

250. (Previously Presented) The device of claim 224, further comprising one of:
a multilayer headbox subdivided into at least two channels by at least one slat extending over an entire machine width;
a multilayer headbox subdivided at least substantially symmetrically into two channels by a slat;
a multilayer headbox subdivided at least substantially symmetrically into two channels by a slat that extends outward beyond a nozzle in a region of an outlet gap;
a multilayer headbox equipped with sectional dilution water regulation over a machine width; and
a multilayer headbox equipped with sectional dilution water control over a machine width.

251. (Previously Presented) The device of claim 224, wherein the tissue web is formed with one of:
at least two layers utilizing sectional dilution water regulation and/or control in the headbox; and

at least one layer utilizing sectional dilution water regulation and/or control in the headbox, whereby the at least one layer faces a forming roll.

252. (Previously Presented) The device of claim 224, wherein the tissue web is subjected to greater drying by a drying hood than the at least one drying cylinder.

253. (Previously Presented) The device of claim 252, wherein a ratio of the proportion of the drying by the drying hood and the proportion of the drying with the at least one drying cylinder is one of:

- greater than 55:45;
- greater than or equal to 60:30;
- greater than or equal to 65:35; and
- greater than or equal to 70:30.

254. (Previously Presented) The device of claim 224, further comprising a drying hood operating one of:

- at a temperature that is greater than or equal to 400°C;
- at a temperature that is greater than or equal to 500°C;
- at a temperature that is greater than or equal to 600°C; and
- at a temperature that is greater than or equal to 700°C.

255. (Previously Presented) The device of claim 224, wherein the at least one drying cylinder utilizes a steam pressure in the at least one drying cylinder that is one of:

- less than or equal to 0.7 MPa;
- less than or equal to 0.6 MPa; and
- less than or equal to 0.5 MPa.

256. (Previously Presented) The device of claim 224, further comprising one of:
the tissue web being moved over a carrier drum of the winding device and then wound up onto the spool of the winding device; and

the tissue web being moved over a driven carrier drum of the winding device and then wound up onto the spool of the winding device and the spool is a driven spool.

257. (Previously Presented) The device of claim 256, wherein the line force in the winding nip between the carrier drum and the spool is one of:

less than or equal to 0.5 kN/m; and

less than or equal to 0.2 kN/m.

258. (Previously Presented) The device of claim 256, wherein a maximum difference between a circumferential speed of the spool and a circumferential speed of the carrier drum is less than 10%.

259. (Previously Presented) The device of claim 224, further comprising one of:

an arrangement for maintaining the free web draw and a drive assigned to the winding drum, the free web draw being maintained irrespective of the line force produced in the winding nip;

an arrangement for controlling the free web draw and a drive assigned to the winding drum, the free web draw being controlled irrespective of the line force produced in the winding nip;

an arrangement for regulating the free web draw and a drive assigned to the winding drum, the free web draw being controlled irrespective of the line force produced in the winding nip;

an arrangement for controlling the free web draw between the at least one drying cylinder and the winding drum via a drive assigned to the winding drum as a function of a speed of the winding drum; and

an arrangement for regulating the free web draw between the at least one drying cylinder and the winding drum via a drive assigned to the winding drum as a function of a speed of the winding drum.

260. (Previously Presented) The device of claim 224, wherein the winding drum is a carrier drum and the spool is a movable spool and one of:

- the winding device comprises the carrier drum mounted in a fixed location and the movable spool;

- the winding device comprises the carrier drum mounted in a fixed location and the movable spool, whereby movement of the spool compensates for an increase in roll diameter of the spool;

- the winding device comprises the carrier drum mounted in a fixed location and the movable spool, whereby the line force in the winding nip of the winding device is set via the movable spool;

- the winding device comprises the carrier drum mounted in a fixed location and the movable spool, whereby the line force in the winding nip of the winding device and a growth of a diameter of the spool is set and compensated for using a common control loop; and

- the winding device comprises the carrier drum mounted in a fixed location and the movable spool, whereby the line force in the winding nip of the winding device is determined via at least one force sensor.

261. (Previously Presented) The device of claim 224, wherein the winding drum is a carrier drum and the spool is a movable spool, and wherein the line force is one of:

- less than or equal to 0.5 kN/m; and

- less than or equal to 0.2 kN/m.

262. (Previously Presented) The device of claim 224, wherein the winding drum is a carrier drum and the spool is a movable spool, and wherein a displacement of the spool is controlled by measuring one of:

- a roll diameter of the spool;

- a position of the spool relative to the carrier drum;

- a position of the spool utilizing sensors; and

- a position of the spool utilizing LVDT (linear variable differential transformer) sensors.

263. (Previously Presented) The device of claim 224, wherein the winding drum is a carrier drum and the spool is a movable spool, and wherein one of:

- the line force in the winding nip of the winding device is set and controller and a region of the winding nip is monitored with a CCD camera;

- the line force in the winding nip of the winding device is set and controlled and a region of the winding nip is monitored with a CCD camera; and

- a CCD camera registers a distance between the carrier drum and the spool.

264. (Previously Presented) The device of claim 224, wherein the tissue web has a mass per unit area in an uncreped state that is in the range of between about 11 g/m² to about 20 g/m² and in a creped state is in the range of between about 14 g/m² to about 24 g/m².

265. (Previously Presented) The device of claim 224, further comprising one of:

- a Crescent formed for forming the tissue web, wherein the tissue web is moved with a felt over the Crescent former and then over at least one evacuated device, and thereafter moved through a press nip formed by the at least one drying cylinder;

- a Crescent former for forming the tissue web, wherein the tissue web is moved with a felt over the Crescent former and then over a suction roll, and thereafter through a press nip formed by the at least one drying cylinder; and

- a Crescent former and a felt for forming the tissue web, wherein the tissue web is move from the Crescent former to an evacuation device, and thereafter through a press nip formed by the at least one drying cylinder.

266. (Previously Presented) The device of claim 224, further comprising a shoe press arranged at the at least one drying cylinder, wherein the shoe press has a shoe length measured in a web running direction that is one of:

- greater than or equal to 80 mm; and

- greater than or equal to 120 mm.

267. (Previously Presented) The device of claim 224, further comprising a shoe press arranged at the at least one drying cylinder and one of:

- a line force being produced in the shoe press which is in the range of between about 60 kN/m to about 90 kN/m;

- a maximum pressing pressure being produced in the shoe press that is less than or equal to 2 bar; and

- a maximum pressing pressure being produced in the shoe press that is less than or equal to 1.5 bar.

268. (Previously Presented) The device of claim 224, further comprising a shoe press arranged at the at least one drying cylinder, wherein the shoe press comprises a shoe press unit having a blind-drilled press shell.

269. (Previously Presented) The device of claim 224, wherein the at least one drying cylinder comprises one of:

- a Yankee cylinder; and

- a Yankee cylinder with reinforcing ribs in an interior thereof.

270. (Previously Presented) The device of claim 224, wherein the creping doctor comprises a thickness that is less than or equal to 0.9 mm.

271. (Previously Presented) The device of claim 224, wherein an angle of attack between a tangent of the at least one drying cylinder and the creping doctor is less than or equal to 20°.

272. (Previously Presented) The device of claim 224, wherein a rake angle (β) of the creping doctor is greater than or equal to 15°.

273. (Previously Presented) The device of claim 224, further comprising one of:

- a device for compensating automatically for a growth of a roll diameter of the spool of the winding device; and

a device for automatically setting the line force in the winding nip of the winding device.

274. (Currently Amended) A device for producing a tissue web comprising:

at least one drying cylinder;

a creping doctor arranged on the at least one drying cylinder;

a winding device for winding up the tissue web;

the winding device comprising a winding nip formed between a winding drum and a spool;

a transfer belt at least largely bridging an entire distance between the creping doctor and the winding device and moving around the winding drum of the winding device;

a free web draw arranged between the creping doctor and the winding device; and

a mechanism for at least one of controlling and measuring a line force in the winding nip, wherein the tissue web is supported on only ~~one side~~ on its underside by the transfer belt between the free web draw and the winding nip and the tissue web has an opposite unsupported side between the creping doctor and the winding device, and

wherein the line force is less than or equal to 0.8 kN/m.

275. (Currently Amended) The device of claim 274, wherein the free web draw spans an entire distance between the creping doctor and the transfer belt, wherein the transfer belt is a single endless transfer belt, ~~wherein the tissue web is supported on its underside by the transfer belt over an entire distance from where the tissue web first contacts the transfer belt to the winding nip,~~ and wherein the tissue web is transported the entire distance from where the tissue web first contacts the transfer belt to the winding device using only the single transfer belt.

276. (Previously Presented) The device of claim 224, wherein the transfer device is a single transfer belt.

277. (Canceled).

278. (Previously Presented) The device of claim 224, wherein only the free web draw is arranged between the creping doctor and the transfer device.

279. (Previously Presented) The device of claim 278, wherein the transfer device is a single transfer belt which supports the tissue web from underneath.

280. (Currently Amended) The device of claim 224, wherein the tissue web is largely supported on its underside by the transfer device ~~even over~~ an entire distance from the creping doctor to the winding nip, and, after moving around the winding drum, returns to a position where the free web draw meets the transfer device.

281. (Previously Presented) The device of claim 280, wherein the transfer device is a single transfer belt.

282. (Previously Presented) The device of claim 224, wherein the transfer device is a single transfer belt which supports the tissue web from underneath and wherein the free web draw is a short free web draw arranged between the creping doctor and the transfer belt.

283. (Currently Amended) The device of claim 224, wherein ~~the tissue web is supported on its underside by the transfer device even an entire distance from where the tissue web first contacts the transfer device to the winding nip and~~ an upper surface of the tissue web is exposed ~~even over~~ an entire distance from where the tissue web first contacts the transfer belt to the winding device.

284. (Previously Presented) The device of claim 283, wherein the transfer device is a single endless belt that, after moving around the winding drum, returns to a position where the free web draw meets the transfer belt.

285. (Previously Presented) The device of claim 282, further comprising a scanning device arranged over the single endless belt.

286. (Canceled).

287. (Currently Amended) The device of claim 285, wherein an upper surface of the tissue web is exposed ~~even~~ over an entire distance from where the tissue web first contacts the transfer belt to the winding device.

288. (Currently Amended) The device of claim 224, wherein the free web draw spans an entire distance between the creping doctor and the transfer device, wherein the transfer device is a single endless transfer belt, ~~wherein the tissue web is supported on its underside by the transfer belt even an entire distance from where the tissue web first contacts the transfer belt to the winding nip, and wherein the tissue web is transported the entire distance from where the tissue web first contacts the transfer belt to the winding device using only the single transfer belt.~~

289. (Previously Presented) The device of claim 224, wherein the free web draw spans an entire distance between the creping doctor and the transfer device, and wherein the transfer device is a single endless transfer belt.

2. The following is an examiner's statement of reasons for allowance: the prior art does not teach nor fairly suggest the limitations of the device as it is now claimed. More specifically the prior art does not teach nor suggest a device the combination of the free web draw between the creping doctor and the winding device, with a mechanism to control and/or measure the line force while the web is wound supported on its underside¹. Note that the primary reference winds the web on its air-side. See also applicants' arguments filed with the appeal brief of April 14, 2011.

¹ Underside is the web surface touching the papermaking machine, also known as machine side; the surface opposite to the side of the web in contact with the air, the air side.

Note also that in claim 240 the low basis weight and strength has been interpreted as tissues disclosed in paragraph [0037] of the substitute specification filed on November, 23, 2006, i.e., webs having basis weights and tensile of toilet and/or facial tissues.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Jose A. Fortuna/ whose telephone number is (571)272-1188. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew J. Daniels can be reached on 571-272-2450. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jose A. Fortuna/

Application/Control Number: 10/560,074
Art Unit: 1741

Page 17

Primary Examiner
Art Unit 1741

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